



# MMWR

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## Recommended Childhood and Adolescent Immunization Schedule --- United States, 2005

### Harmonized Childhood and Adolescent Immunization Schedule, 2005

The Advisory Committee on Immunization Practices (ACIP) periodically reviews the recommended childhood and adolescent immunization schedule to ensure that the schedule is current with changes in vaccine formulations and reflects revised recommendations for the use of licensed vaccines, including those newly licensed. Recommendations and format of the childhood and adolescent immunization schedule for July--December 2004 were approved by ACIP, the American Academy of Family Physicians (AAFP), and the American Academy of Pediatrics (AAP) and were published in April 2004 (*1*). That schedule updated previous ones by adding the recommendation that, beginning in fall 2004, healthy children aged 6--23 months, as well as household contacts and out-of-home caregivers for healthy children aged 0--23 months, receive annual influenza vaccine (*2*).

The childhood and adolescent immunization schedule for 2005 is unchanged from that published in April 2004 (*Figure*). In addition, the catch-up immunization schedule for children and adolescents who start late or who are >1 month behind remains unchanged from that published in January 2004 and again in April 2004 (*Table*). The childhood and adolescent immunization schedule and the catch-up immunization schedule for 2005 have been approved by ACIP, AAFP, and AAP.

### Vaccine Information Statements

The National Childhood Vaccine Injury Act requires that all health-care providers provide parents or patients with copies of Vaccine Information Statements before administering each dose of the vaccines listed in the schedule. Additional information is available from state health departments and at <http://www.cdc.gov/nip/publications/vis>.

Detailed recommendations for using vaccines are available from package inserts, ACIP statements on specific vaccines, and the 2003 *Red Book* (*3*). ACIP statements for each recommended childhood vaccine can be viewed, downloaded, and printed from the CDC National Immunization Program website at <http://www.cdc.gov/nip/publications/acip-list.htm>. In addition, guidance on obtaining and completing a Vaccine Adverse Event Reporting System form is available at <http://www.vaers.org> or by telephone, 800-822-7967.

### References

1. CDC. Recommended childhood and adolescent immunization schedule---United States, July--December 2004. *MMWR* 2004;53:Q1--Q3.
2. CDC. Prevention and control of influenza: recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR* 2004;53(No. RR-6).
3. American Academy of Pediatrics. Active and passive immunization. In: Pickering LK, ed. 2003 red book: report of the Committee on Infectious Diseases. 26th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2003.

The Recommended Childhood and Adolescent Immunization Schedule and the Catch-up Childhood and Immunization Schedule have been adopted by the Advisory Committee on Immunization Practices, the American Academy of Pediatrics, and the

American Academy of Family Physicians. The standard MMWR footnote format has been modified for publication of this schedule.

Suggested citation: Centers for Disease Control and Prevention. Recommended childhood and adolescent immunization schedule---United States, 2005. MMWR 2005;53 (Nos. 51&52):Q1--Q3.

Figure

FIGURE. Recommended childhood and adolescent immunization schedule,<sup>1</sup> by vaccine and age — United States, 2005

Vaccine	Birth	1 mo	2 mos	4 mos	6 mos	12 mos	15 mos	18 mos	24 mos	4-6 yrs	11-12 yrs	13-18 yrs
Hepatitis B <sup>2</sup>	HepB #1 <small>(only if mother HBsAg (-))</small>	HepB #2			HepB #3			HepB series				
Diphtheria, tetanus, pertussis <sup>3</sup>			DTaP	DTaP	DTaP		DTaP			DTaP	Td	Td
<i>Haemophilus influenzae</i> type b <sup>4</sup>			Hib	Hib	Hib <sup>4</sup>	Hib						
Inactivated poliovirus			IPV	IPV	IPV				IPV			
Measles, mumps, rubella <sup>5</sup>						MMR #1				MMR #2	MMR #2	
Varicella <sup>6</sup>						Varicella				Varicella		
Pneumococcal <sup>7</sup>			PCV	PCV	PCV	PCV			PCV	PPV		
Influenza <sup>8</sup>					Influenza (yearly)				Influenza (yearly)			
Hepatitis A <sup>9</sup>										Hepatitis A series		

--- Vaccines below red line are for selected populations ---

Range of recommended ages
  Catch-up immunization
  Preadolescent assessment

1. This schedule indicates the recommended ages for routine administration of currently licensed childhood vaccines, as of December 1, 2004, for children aged ≤16 years. Any dose not administered at the recommended age should be administered at any subsequent visit when indicated and feasible.   Indicates age groups that warrant special effort to administer those vaccines not previously administered. Additional vaccines might be licensed and recommended during the year. Licensed combination vaccines may be used whenever any components of the combination are indicated and other components of the vaccine are not contraindicated. Providers should consult package inserts for detailed recommendations. Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System; guidance is available at <http://www.vaers.org> or by telephone, 800-822-7967.

2. Hepatitis B (HepB) vaccine. All infants should receive the first dose of HepB vaccine soon after birth and before hospital discharge; the first dose may also be administered by age 2 months if the mother is hepatitis B surface antigen (HBsAg) negative. Only monovalent HepB may be used for the birth dose. Monovalent or combination vaccine containing HepB may be used to complete the series. Four doses of vaccine may be administered when a birth dose is administered. The second dose should be administered at least 4 weeks after the first dose, except for combination vaccines, which cannot be administered before age 6 weeks. The third dose should be administered at least 16 weeks after the first dose and at least 8 weeks after the second dose. The final dose in the vaccination series (third or fourth dose) should not be administered before age 24 weeks. *Infants born to HBsAg-positive mothers* should receive HepB and 0.5 mL of hepatitis B immune globulin (HBIG) at separate sites within 12 hours of birth. The second dose is recommended at age 1–2 months. The final dose in the immunization series should not be administered before age 24 weeks. These infants should be tested for HBsAg and antibody to HBsAg at age 9–15 months. *Infants born to mothers whose HBsAg status is unknown* should receive the first dose of the HepB series within 12 hours of birth. Maternal blood should be drawn as soon as possible to determine the mother's HBsAg status; if the HBsAg test is positive, the infant should receive HBIG as soon as possible (no later than age 1 week). The second dose is recommended at age 1–2 months. The last dose in the immunization series should not be administered before age 24 weeks.

3. Diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine. The fourth dose of DTaP may be administered as early as age 12 months, provided 6

4. *Haemophilus influenzae* type b (Hib) conjugate vaccine. Three Hib conjugate vaccines are licensed for infant use. If PRP-OMP (PedvaxHIB® or ComVax® [Merck]) is administered at ages 2 and 4 months, a dose at age 6 months is not required. DTaP/Hib combination products should not be used for primary immunization in infants at ages 2, 4, or 6 months but can be used as boosters after any Hib vaccine. The final dose in the series should be administered at age ≥12 months.

5. Measles, mumps, and rubella (MMR) vaccine. The second dose of MMR is recommended routinely at age 4–6 years but may be administered during any visit, provided at least 4 weeks have elapsed since the first dose and both doses are administered beginning at or after age 12 months. Those who have not previously received the second dose should complete the schedule by age 11–12 years.

6. Varicella vaccine. Varicella vaccine is recommended at any visit at or after age 12 months for susceptible children (i.e., those who lack a reliable history of chickenpox). Susceptible persons aged ≥13 years should receive 2 doses administered at least 4 weeks apart.

7. Pneumococcal vaccine. The heptavalent pneumococcal conjugate vaccine (PCV) is recommended for all children aged 2–23 months and for certain children aged 24–59 months. The final dose in the series should be administered at age ≥12 months. Pneumococcal polysaccharide vaccine (PPV) is recommended in addition to PCV for certain groups at high risk. See MMWR 2000;49 (No. RR-9).

8. Influenza vaccine. Influenza vaccine is recommended annually for children aged ≥6 months with certain risk factors (including, but not limited to, asthma, cardiac disease, sickle cell disease, human immunodeficiency virus [HIV], and diabetes), health-care workers, and other persons (including household members) in close contact with persons in groups at high risk (see MMWR 2004;53 [No. RR-6]). In addition, healthy children aged 6–23 months and close contacts of healthy children aged 0–23 months are recommended to receive influenza vaccine because children in this age group are at substantially increased risk for influenza-related hospitalizations. For healthy persons aged 5–49 years, the intranasally administered, live, attenuated influenza vaccine (LAIV) is an acceptable alternative to the intramuscular trivalent inactivated influenza vaccine (TIV). See MMWR 2004;53 (No. RR-6). Children receiving TIV should be administered a dosage appropriate for their age (0.25 mL if aged 6–35 months or 0.5 mL if aged ≥3 years). Children aged ≥8 years who are receiving influenza vaccine for the first time should receive 2 doses (separated by at least 4 weeks for TIV and at least 6 weeks for LAIV).

9. Hepatitis A vaccine. Hepatitis A vaccine is recommended for children and

3. Diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine. The fourth dose of DTaP may be administered as early as age 12 months, provided 6 months have elapsed since the third dose and the child is unlikely to return at age 15–18 months. The final dose in the series should be administered at age  $\geq 4$  years. Tetanus and diphtheria toxoids (Td) is recommended at age 11–12 years if at least 5 years have elapsed since the last dose of tetanus and diphtheria toxoid-containing vaccine. Subsequent routine Td boosters are recommended every 10 years.

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## Table

**TABLE. Catch-up immunization schedule for children and adolescents who start late or who are >1 month behind, by age group, vaccine, and dosage interval — United States, 2005**

### Catch-up schedule for children aged 4 months–6 years

Vaccine	Minimum age for dose 1	Minimum interval between doses			
		Dose 1 to dose 2	Dose 2 to dose 3	Dose 3 to dose 4	Dose 4 to dose 5
DTaP <sup>1</sup>	6 wks	4 wks	4 wks	6 mos	6 mos <sup>1</sup>
IPV <sup>2</sup>	6 wks	4 wks	4 wks	4 wks <sup>2</sup>	
HepB <sup>3</sup>	Birth	4 wks	8 wks (and 16 wks after first dose)		
MMR <sup>4</sup>	12 mos	4 wks <sup>4</sup>			
Varicella	12 mos				
Hib <sup>5</sup>	6 wks	4 wks: if first dose administered at age <12 mos 8 wks (as final dose): if first dose administered at age 12–14 mos No further doses needed if first dose administered at age $\geq 15$ mos	4 wks <sup>6</sup> : if current age <12 mos 8 wks (as final dose) <sup>6</sup> : if current age $\geq 12$ mos and second dose administered at age <15 mos No further doses needed if previous dose administered at age $\geq 15$ mos	8 wks (as final dose): This dose only necessary for children aged 12 mos–5 yrs who received 3 doses before age 12 mos	
PCV <sup>7</sup>	6 wks	4 wks: if first dose administered at age <12 mos and current age <24 mos 8 wks (as final dose): if first dose administered at age $\geq 12$ mos or current age 24–59 mos No further doses needed for healthy children if first dose administered at age $\geq 24$ mos	4 wks: if current age <12 mos 8 wks (as final dose): if current age $\geq 12$ mos No further doses needed for healthy children if previous dose administered at age $\geq 24$ mos	8 wks (as final dose): This dose only necessary for children aged 12 mos–5 yrs who received 3 doses before age 12 mos	

### Catch-up schedule for children aged 7–18 years

Vaccine	Minimum interval between doses		
	Dose 1 to dose 2	Dose 2 to dose 3	Dose 3 to booster dose
Td <sup>8</sup>	4 wks	6 mos	6 mos <sup>8</sup> : if first dose administered at age <12 mos and current age <11 yrs 5 yrs <sup>8</sup> : if first dose administered at age $\geq 12$ mos and third dose administered at age <7 yrs and current age $\geq 11$ yrs 10 yrs <sup>8</sup> : if third dose administered at age $\geq 7$ yrs
IPV <sup>9</sup>	4 wks	4 wks	IPV <sup>2,9</sup>
HepB	4 wks	8 wks (and 16 wks after first dose)	
MMR	4 wks <sup>4</sup>		
Varicella <sup>10</sup>	4 wks		

**Note:** A vaccine series does not require restarting, regardless of the time that has elapsed between doses.

1. Diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine. The fifth dose is not necessary if the fourth dose was administered after the fourth birthday.
2. Inactivated poliovirus (IPV) vaccine. For children who received an all-IPV or all-oral poliovirus (OPV) series, a fourth dose is not necessary if the third dose was administered at age  $\geq 4$  years. If both OPV and IPV were administered as part of a series, a total of 4 doses should be administered, regardless of the child's current age.
3. Hepatitis B (HepB) vaccine. All children and adolescents who have not been immunized against hepatitis B should begin the HepB immunization series during any visit. Providers should make special efforts to immunize children who were born in, or whose parents were born in, areas of the world where hepatitis B virus infection is moderately or highly endemic.
4. Measles, mumps, and rubella (MMR) vaccine. The second dose of MMR is recommended routinely at age 4–6 years but may be administered earlier if desired.
5. *Haemophilus influenzae* type b (Hib) vaccine. Vaccine is not generally recommended for children aged  $\geq 5$  years.
6. Hib vaccine. If current age is <12 months and the first 2 doses were PRP-OMP (PedvaxHIB<sup>®</sup> or ComVax<sup>®</sup> [Merck]), the third (and final) dose should be administered at age 12–15 months and at least 8 weeks after the second dose.
7. Pneumococcal conjugate (PCV) vaccine. Vaccine is not generally recommended for children aged  $\geq 5$  years.
8. Tetanus and diphtheria toxoids (Td). For children aged 7–10 years, the interval between the third and booster dose is determined by the age when the first dose was

age 12-13 years and at least 1 dose of tetanus and diphtheria toxoids.

7. **Pneumococcal conjugate (PCV) vaccine.** Vaccine is not generally recommended for children aged  $\geq 5$  years.

8. **Tetanus and diphtheria toxoids (Td).** For children aged 7-10 years, the interval between the third and booster dose is determined by the age when the first dose was administered. For adolescents aged 11-18 years, the interval is determined by the age when the third dose was administered.

9. **IPV.** Vaccine is not generally recommended for persons aged  $\geq 18$  years.

10. **Varicella vaccine.** Administer the 2-dose series to all susceptible adolescents aged  $\geq 13$  years.

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